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PHYSICS

Exemplar Problems

CLASS XII

EXEMPLAR PROBLEMS IN PHYSICS

CLASS XII

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राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
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**OFFICES OF THE PUBLICATION
DEPARTMENT, NCERT**

NCERT Campus
Sri Aurobindo Marg
New Delhi 110 016 Phone : 011-26562708

108, 100 Feet Road
Hosdakere Halli Extension
Banashankari III Stage
Bangalore 560 085 Phone : 080-26725740

Navjivan Trust Building
P.O. Navjivan
Ahmedabad 380 014 Phone : 079-27541446

CWC Campus
Opp. Dhankal Bus Stop
Panihati
Kolkata 700 114 Phone : 033-25530454

CWC Complex
Maligaon
Guwahati 781 021 Phone : 0361-2674869

Publication Team

Head, Publication : *Neerja Shukla*
Department
Chief Production : *Shiv Kumar*
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Cover Design

Shweta Rao

FOREWORD

The National Curriculum Framework (NCF)–2005 initiated a new phase of development of syllabi and textbooks for all stages of school education. Conscious efforts have been made to discourage rote learning and to diffuse sharp boundaries between different subject areas. This is well in tune with the National Policy on Education (NPE)–1986 and *Learning Without Burden*–1993 that recommend child centred system of education. The textbooks for Classes IX and XI were released in 2006 and for Classes X and XII in 2007. Overall the books have been well received by students and teachers.

NCF–2005 notes that treating the prescribed textbooks as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. It further reiterates that the methods used for teaching and evaluation will also determine how effective these textbooks prove for making children's life at school a happy experience, rather than source of stress or boredom. It calls for reform in examination system currently prevailing in the country.

The position papers of the National Focus Groups on *Teaching of Science*, *Teaching of Mathematics* and *Examination Reform* envisage that the physics question papers, set in annual examinations conducted by the various Boards do not really assess genuine understanding of the subjects. The quality of questions papers is often not up to the mark. They usually seek mere information based on rote memorisation, and fail to test higher-order skills like reasoning and analysis, let alone lateral thinking, creativity, and judgment. Good unconventional questions, challenging problems and experiment-based problems rarely find a place in question papers. In order to address the issue, and also to provide additional learning material, the Department of Education in Science and Mathematics (DESM) has made an attempt to develop resource book of exemplar problems in different subjects at secondary and higher secondary stages. Each resource book contains different types of questions of varying difficulty level. Some questions would require the students to apply simultaneously understanding of more than one chapters/units. These problems are not meant to serve merely as question bank for examinations but are primarily meant to improve the quality of teaching/learning process in schools. It is expected that these problems would encourage teachers to design quality questions on their own. Students and teachers should always keep in mind that examination and assessment should test comprehension, information recall, analytical thinking and problem- solving ability, creativity and speculative ability.

A team of experts and teachers with an understanding of the subject and a proper role of examinations worked hard to accomplish this task. The material was discussed, edited, and finally included in this resource book.

National Council of Educational Research and Training (NCERT) would welcome suggestions from students, teachers and parents which would help us to further improve the quality of material in subsequent editions.

New Delhi
21 May 2008

Yash Pal
Chairperson
National Steering Committee
National Council of Educational
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